

## ABSTRACT OF THE DISCLOSURE

5 Methods in intermediate frequency and direct conversion receivers for reducing pre-selection filter leakage and harmonic coupling to a programmable voltage controlled oscillator by mixing a receive signal at a mixer having a mixer injection frequency outside a pre-selection filter passband. In some applications, the mixer injection frequency is conditionally moved outside the pre-selection filter passband. In other applications, signal gain is increased to compensate for any loss resulting from shifting the mixer injection frequency outside the pre-selection passband.

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